

# Very Dense High Speed 3u VPX Memory and Processing Space Systems, Phase II

Completed Technology Project (2011 - 2013)



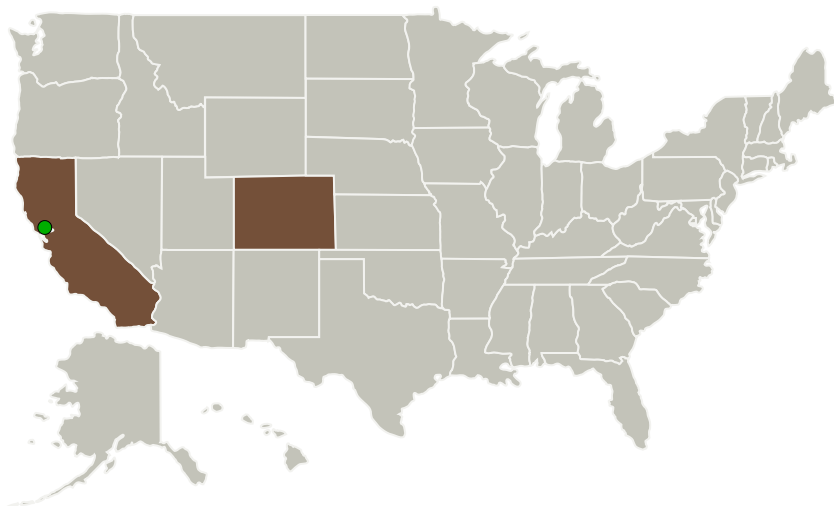
## Project Introduction

While VPX shows promise as an open standard COTS computing and memory platform, there are several challenges that must be overcome to migrate the technology for a space application. For the Phase I SBIR, SEAKR investigated the 3u VPX architecture for the space environment for advanced memory and processing systems. The SBIR investigation focused on researching innovative switch fabric architectures, identifying and qualifying the building blocks for a space qualified VPX system, and addressed some of the challenges associated with VPX flash memory modules. The areas of innovation that have been addressed are outlined below:

- Research and evaluate the basic building blocks required for a high speed switch VPX architecture
- Explore advanced EDAC and innovative wear leveling techniques for commercially upscaled flash memory for space applications
- Evaluate different techniques for very high speed flash memory access rates

The Phase II SBIR will build on the Phase I study to produce a deliverable engineering model of a 3U VPX flash memory module.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
SEAKR Engineering, Inc.	Lead Organization	Industry	Centennial, Colorado
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Colorado

## Project Transitions

**June 2011:** Project Start**November 2013:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139424>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

SEAKR Engineering, Inc.

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

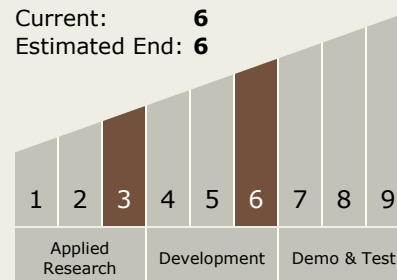
Carlos Torrez

### Principal Investigator:

Michael Coe

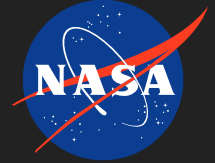
## Technology Maturity (TRL)

Start: 3  
Current: 6  
Estimated End: 6



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## Technology Areas

### Primary:

- TX09 Entry, Descent, and Landing
  - └ TX09.4 Vehicle Systems
    - └ TX09.4.4 Atmosphere and Surface Characterization

## Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System